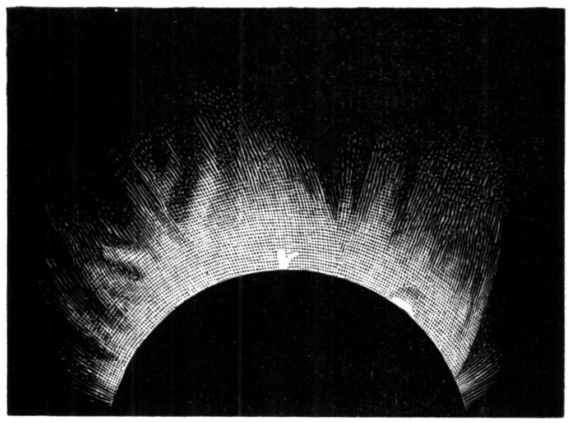
the Novaya Zemlya photographs, and that of 1886 is very striking—closer, in fact, than that between any two coronas of different years that have yet been photographed. It may be interesting also to compare the corona of 1896 with that of 1885 (eleven years before), and I therefore give a rough outline which I sketched some years ago from negatives taken in New Zealand, which have never been published. The corona of 1885 does not appear so much like that of 1896, as the long extension on the north-west, shown in the latter year and in 1886, is in 1885 much nearer the Equator—forming, in fact, an equatorial extension. The sketch has been oriented from indications on the original ; but should there be any mistake on this point, and the north pole of the Sun's axis in 1885 lie some 45° further west, the resemblance between the corona of that year and that of 1896 would be decidedly close.



Sketch of detail in the Corona of 1896.

"The corona photographs which have been taken in Novaya Zemlya are extremely beautiful, but, of course, no lantern slides can do justice to the original negatives. Some of the detail on the south-east quadrant appears to me of an unusual, if not unique, kind. This will be better understood from the rough sketch which I have made from a positive copy of one of the negatives ; but a study of the originals would doubtless reveal much more than can be made out from the copy."

Comparison of the Sun's Longitudes for 1901, *computed from Newcomb's Tables of the Sun with those computed from Le Verrier's Tables.* By A. M. W. Downing, M.A., D.Sc., F.R.S.

The following comparison exhibits the corrections to apparent longitudes of the Sun (referred to the mean equinox of date), taken from Le Verrier's *Tables du Soleil*, deduced from the corresponding longitudes taken from Newcomb's Tables at eight-day intervals during the year 1901.

The large annual term appearing in the comparison is due mainly to the corrections for eccentricity and longitude of perigee, which (as is pointed out in *Monthly Notices*, vol. lvi. No. 2, page 69) amount to

$$+0''.40 \sin g - 0''.21 \cos g,$$

where g is the mean anomaly.

The outstanding residuals (after application of the above) are traceable to differences in the tables of perturbations.

Longitudes of Sun 1901.

Corrections to Le Verrier's Tables.

Day.	Correction.	Day.	Correction.
	"		"
Jan. 2	−0.86	July 5	+0.02
10	−0.64	13	−0.03
18	−0.59	21	−0.16
26	−0.69	29	−0.21
Feb. 3	−0.49	Aug. 6	−0.16
11	−0.39	14	−0.28
19	−0.40	22	−0.45
27	−0.38	30	−0.45
Mar. 7	−0.22	Sept. 7	−0.51
15	−0.14	15	−0.67
23	−0.20	23	−0.77
31	−0.10	Oct. 1	−0.72
Apr. 8	+0.01	9	−0.83
16	−0.01	17	−0.95
24	−0.04	25	−1.05
May 2	0.00	Nov. 2	−0.94
10	+0.08	10	−1.05
18	+0.06	18	−1.12
26	+0.01	26	−1.00
June 3	+0.13	Dec. 4	−0.92
11	+0.19	12	−0.95
19	+0.02	20	−0.95
27	−0.09		−0.72

Nautical Almanac Office:
1896 *December* 8.

On Systematic Errors in observing Right Ascensions of Nebulæ.

By J. L. E. Dreyer, Ph.D.

Although a great number of micrometer measures of nebulæ have been made during the last forty years, it has hitherto not been found feasible to combine the results into a general catalogue of accurate positions of nebulæ, owing to the systematic errors with which the observations of Right Ascension are more or less affected. Attention was first drawn to these errors by Julius Schmidt (*Astr. Nachr.*, No. 1463), who pointed out that Schönfeld's Right Ascensions, deduced from observations made with an annular micrometer, were systematically smaller than those found by himself with a similar micrometer, and, as was soon afterwards found, smaller than those of several other observers. In 1875, when the extensive and valuable series of filar-micrometer observations by Schultz had been published, I compared them with Schönfeld's, using only those objects which the two observers had compared with the same star, and I found from 113 objects the very pronounced difference Schönfeld I. − Schultz = −0^s·34. It appeared, furthermore, as already noticed by Schmidt, that the difference depended to a great extent on the degree of condensation of the objects. Dividing these into three classes according as they had a sharp nucleus, were fairly condensed or wanting any condensation, the difference was found to be *

I.	$\Delta\alpha \cos\delta$ =	−0·15	from 32	neb.
II.		−0·39	„ 53	„
III.		−0·44	„ 28	„

Shortly afterwards Schönfeld published his second series of measures, and, as might have been expected, the knowledge that he observed transits of nebulous objects too early led to a reduction of his personal error, the difference Schönfeld II. − Schultz being = −0^s·15. From this and the former difference there results Sch. I. − II. = −0^s·19, while the direct comparison between the two series gave −0^s·21, and an indirect comparison by means of Rümker's measures gave −0^s·25.†

Every series of observations which has been published since has confirmed the reality of these errors in the observed Right Ascensions, while differences in declination between various observers appear to be mere accumulations of accidental errors. Thus M. d'Engelhardt gives the following differences between

* *Vierteljahrsschrift d. Astr. Ges.*, vol. x. p. 72.
† *Ibid.*, vol. xi. p. 274.